

# Site Optimization Analysis for the Girl Scouts of Northern Illinois

GISCorps Conducts a Site Optimization Analysis for the Girl Scouts of Northern Illinois (GSNI)

By: Jon Schwichtenberg, GISCorps Volunteer

This project was developed to enable the GSNI to assess their current membership and how their existing locations serve those members. The GSNI wanted to determine how to best serve current members and potential new members through their facilities. They needed maps and locational analysis to assist in the review of current locations versus new locations so they could serve the population of the area more effectively. The project entailed the following process:

1. Met remotely with the staff to discuss what they wanted as output from the project. This discussion was primarily focused on how we could model scenarios with available data to accurately depict their locational services. Ultimately they wanted multiple scenarios so that they could visually depict results and make informed decisions on which locations to remove and which new locations should be added. The staff gave the project team a Microsoft Excel list of the member (girls and volunteers) locations, physical locations of the existing sites they currently occupy, current camp sites and the approximate location of new sites.

2. After meeting we used the geocoding model from ArcGIS online to locate the members and sites. This gave us accurate locations for all of the points in the project.

3. We then updated the road centerline model to have accurate speed limits, as well as cleaning up the road centerlines to make the model useful as a base map layer. Once the road centerlines were clean, we then built the roadway network layers to use in the network modeling.

4. The next step was to run a network analysis to determine which existing sites members were closest to. This gave the team a base to look at for new locations. The average driving time to a location and to camps was calculated, as well as numbers of members who were closest to any one existing location and camp. The results were documented in a spreadsheet and map layers.

5. The drive times from the existing locations were mapped as "service areas" in 5 minute intervals starting at 15 minutes and ending at 40 minutes. This analysis gave the GSNI the ability to look at gaps in service coverage. Using the 30 minute timeframe service area, we were able to see where new/relocated service sites could potentially be, beyond their initial thoughts of site locations.

6. The same drive time analysis was completed for the camp locations, using 10 minute intervals beginning at 40 minutes and ending at 90 minutes. This analysis and mapping showed where there were current members who could not get to a camp within those timeframes. An hour was a good middle ground for visual analysis. Completing a GAP analysis for the camps we were able to see where future facilities should be looked at as well. The analysis for the camp locations was not part of the initial project, but was a simple addition within the scope.

7. Using the GAP analysis from the existing locations we were able to add multiple new locations to their list. We located those potential new sites and performed "service area" analysis for the sites. All of the sites were modeled for the 5 minute intervals starting at 15 minutes and ending at 40 minutes. All of the locations were saved separately, allowing the GSNI staff to turn layers on and off as necessary to analyze the results and determine their best potential locations.

8. GSNI staff setup an organizational account on ArcGIS online for use in the project. The final step of the project was to load all of the data to their site with 4 initial maps created for their use in their account.

The GSNI staff now have the data to move forward with making informed decisions on their locations. The outcome of this project will help their organization better serve their regional area and make their services to the communities more effective. Helping the youth in America with better access to organizations such as the GSNI, creates a better quality of life and better young people in our nation. I, (Jon Schwichtenberg) was extremely pleased to have been picked as the volunteer for the project, as I have dedicated most of my life to working with the young people in the Madison area through youth sports activities. Being able to assist this great organization was truly an honor.

Everyone we worked with from GISCorps was incredibly helpful, from the initial conversation about the scope of what we were looking for to the completion of the project. They were able to translate our questions and the information we were seeking into a project that met our needs, which was especially valuable given our own limited experience with GIS. Jon was also very responsive to any requests for updates and alterations to the maps he generated to help us ensure that we had exactly what we were looking for.

Emma Eschenfeldt & Charlie Qualls - GSNI